The drawings were objected to in view of 37 C.F.R. 1.83(a). Reconsideration and withdrawal of the drawing objection is respectfully requested in view of the amendment to the preamble of Claim 1 removing the reference to Figure 1. Claim 5 was also objected to on the basis that there were two Claim 5s in the application. The second claim 5 has been renumbered as Claim 6, correcting a typographical error in the numbering of the claims

Claims 1-7 and 10 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Reconsideration and withdrawal of the present rejection is hereby respectfully requested. Claim 1 has been amended to remove the reference to Figure 1. Claim 2 has been amended to clarify the formula of the –NR2 substituent. The second Claim 5 has been renumbered to Claim 6 to correct a typographical error and new Claim 6 has been amended to define the R group of the -OR substituent. As suggested by the Examiner, the specification has also been amended to clarify the formula of the –NR2 substituent such that the claimed substituent groups are now clearly set forth in the specification. Claim 10 was rejected because there was no antecedent basis for "compound". The word "compound" has been amended and changed to "material". No new matter has been added by these amendments.

Claims 1-14 stand rejected under 35 U.S.C. 103(a) in view of Tang et al. (hereafter "Tang") in view of Moore et al. (hereafter "Moore"). Claims 15-22 also stand rejected under 35 U.S.C. 103(a) in view of Tang and Moore as applied to Claims 1-14 and in further view of the statement in the written description (Page 8, lines 4-10) that the

organic EL device could have two or three layer structure in addition to the electrodes. Claims 1, 8, 15, and 19 are independent claims; the remaining claims are dependent claims. Reconsideration and withdrawal of the present rejections are hereby respectfully requested.

Broadly contemplated in accordance with at least one preferred embodiment of the present invention is the use of an organic material in light-emitting devices to increase intrinsic luminescence of the organic molecular unit. This increase in luminescence is accomplished by using an organic material having tris(8-quinolato)aluminum(III) (Alq_3) as a base and modifying the relevant electron states through specific substitutions on the quinolate ring, namely by substituting the Alq_3 unit in positions 3 or 4 and 5. An electron-donor group is substituted in the 3- or 4-position and an electron-acceptor or p-delocalizing group is simultaneously substituted in the 5-position.

The combined substitution amplifies the enhancement of the luminescence and reduces the induced shift of the ionization potential and electronic affinity values with respect to single substitutions which is important to incorporate the new compounds in available device structures. The quantum efficiency of the present invention is higher than any other device made by unsubstituted and undoped Alq_3 and is obtained without adding highly fluorescent dopants. Thus, the stability and carrier transport properties of the Alq_3 are preserved and no additional energy transfer step is needed.

The requirement for simultaneous substitution appears in all independent claims, along with the requirement that substitutions occur in the 3- or 4- position and the 5-

position (a 3- and 5- substitution or a 4- and 5- substitution). It is respectfully submitted that the applied art falls far short of teaching or suggesting the invention embraced by independent Claims 1, 8, 15 and 19.

As best understood, Tang is directed to an electroluminescent device which uses an organic electron transporting zone containing a metal chelated oxinoid compound such as tris(8-quinolinol) aluminum. (see Abstract, Col. 15, Line 59 - Col. 16, Line 43) Thanf does not teach or suggest modifying the relevant electron states through specific substitutions on the quinolate ring to increase the luminescence of the tris(8-quinolinol) aluminum.

Moore, on the other hand, is directed to an organic electroluminescent device using aluminum chelates. As noted in the Office Action, the substituents in the Moore reference can be substituted at all 6 positions. This, however, is not the Applicants' invention. As discussed above, Applicants' invention requires substitutions occur in the 3- or 4- position and the 5- position (a 3- and 5- substitution or a 4- and 5- substitution). Moore even teaches away from the present invention, as Moore states the 3 position has a relatively small influence on the hue of emission. (Col. 7, lines 4-6) Simply put, there is no teaching or suggestion in Moore of an electron-donor group being substituted in the 3- or 4-position and an electron-acceptor or p-delocalizing group being simultaneously substituted in the 5-position.

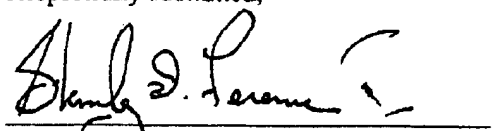
With respect to the rejection of Claims 15-22, Applicants respectfully disagree with the Examiner's characterization of the statements on Page 8, Lines 4-10, that the

organic EL device could have two or three layer structure in addition to the electrodes as an admission against interest. To the contrary, these statements are part of the description of the preferred embodiment in compliance with the patent statute. No where else has the Examiner pointed to any evidence that the EL device of the present invention can be made with two or three layers. Moreover, independent Claims 15 and 19 each require substitution in the 3- or 4- position with an electron-donor group and simultaneous substitution in the 5- position with an electron-acceptor or a p-delocalizing group. As discussed above, there is no teaching of this aspect of the present invention in the art of record.

In view of the foregoing, it is respectfully submitted that Claims 1, 8, 15 and 19 fully distinguish over the applied art and are thus in condition for allowance. By virtue of dependence from what is believed to be allowable independent Claims 1, 8, 15 and 19, it is respectfully submitted that Claims 2-7, 9-14, 16-18 and 20-22 are also presently allowable.

In summary, it is respectfully submitted that the instant application, including Claims 1-22, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited.

Respectfully submitted,



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MARKED-UP VERSION OF CLAIM AMENDMENTS

The paragraph beginning at Page 7, Line 13, is rewritten as follows:

--The substituents R^{py} are preferably selected from the groups -CR'R"R'", [-NR_2] - NRR' and -O-R, wherein R, R', and R" = (H, Alkyl), R'" = (Alkyl), and may be generally selected from any group that is able "to push" electrons onto the ligands.--

Claims 1, 2, 6, and 10 are rewritten as follows:

--1. **(Amended)** A compound [as shown in Figure 1,] wherein:

a base unit consists of tris (8-quinolinato)aluminum(III) (Alq_3);

said base unit in the 3- or 4- position is substituted with an electron-donor group; and

said base unit in the 5- position is simultaneously substituted with an electron-acceptor or p-delocalizing group.--

--2. **(Amended)** The compound according to Claim 1, wherein said electron-donor group in said 3- or 4- position is selected from a group consisting of –CR'R"R'", [NR_2] -NRR' and –OR, wherein R, R' and R" = H or Alkyl, and R'" = Alkyl.--

--[5]6. **(Amended)** The compound according to Claim 1, wherein said electron-donor group in the said 3-or 4- position is –OR, wherein R = H or Alkyl, and said electron-acceptor group in said 5- position is $CF=CF_2$.--

--10. **(Amended)** The material [compound] according to Claim 8, wherein said electron-acceptor or p-delocalizing groups in the said 5- position are selected from a group consisting of $–CX_3$, $-CX_2-CX_3$ $-SO_3R$, $-CR=CR_2$, $-CX=CX_2$, -COOR, $-SO_3R$, $-SO_3M$, and –COOM, whereby X-= F, Cl, Br; R = H or Alkyl, and M = metal ion.--